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12 x 28cm strip of black Worsted wool fabric.

The substrates were weighed before use. The sticks were previously unused and with domed top surface unaltered.

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The apparatus comprised a flat base to which a flat substrate was attached by a clip at each end. A pillar having a mounting to receive a standard size stick barrel was mounted on an arm that was moveable horizontally across the substrate by means of a pneumatic piston.

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Each stick was kept at ambient laboratory temperature overnight before the measurement was made. The stick was advanced to project a measured amount from the barrel. The barrel was then placed in the apparatus and a spring was positioned to biased the stick against the substrate with a standardised force. The apparatus was operated to pass the stick laterally across the substrate eight times. The substrate was carefully removed from the rig and reweighed.

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#### Whiteness of Deposit

The deposits from the previous test were assessed for their whiteness after an interval of 24 hours approximately.

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This was done using a Sony XC77 monochrome video camera with a Cosmimar 16mm focal length lens positioned vertically above a black table illuminated from a high angle using fluorescent tubes to remove shadowing. The apparatus was initially calibrated using a reference grey card, after the fluorescent tubes had been turned on for long enough to give

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a steady light output. A cloth with a deposit thereon from the previous test was placed on the table and the camera was used to capture an image. An area of the image of the deposit was selected and analysed using a Kontron IBAS image analyser. This notionally divided the image into a large array of pixels and measured the grey level of each pixel on a scale of 0 (black) to 255 (white). The average of the grey intensity was calculated. This was a measure of the whiteness of the deposit, with higher numbers indicating a whiter deposit. It was assumed that low numbers show a clear deposit allowing the substrate colour to be seen.

## iii) Melting of Stick

A sample stick in its conventional open-mouthed dispensing container was placed in a constant temperature chamber that was maintained for a cycle of 48 hours to enable any change in its condition to develop. The temperature was raised by a 2°C or 5°C increment before each succeeding cycle. The stick was observed at the end of each cycle, and the temperature noted at which a change in appearance was visible.

## iv) Crystallisation Stability at 45°C

In a test for determining the stability of ester-structured antiperspirant sticks at an elevated temperature, the sample stick was placed in a constant temperature chamber that was maintained at 45°C. The sticks were observed weekly, to

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determine whether they were still translucent or whether their appearance had altered. An intense light was shone on the sticks and a visual check was made as to whether any crystals or domains were visible. In several instances, the  
5 test on a stick was halted if it was still translucent when a similar comparison stick had become opaque, or shortly afterwards.

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